(11)

EP 0 987 822 A3

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 30.08.2000 Bulletin 2000/35

(51) Int. Cl. 7:

H03L 7/099

- (43) Date of publication A2: 22.03.2000 Bulletin 2000/12
- (21) Application number: 99116166.2
- (22) . Date of filing: 23.08.1999
- (84) Designated Contracting States:

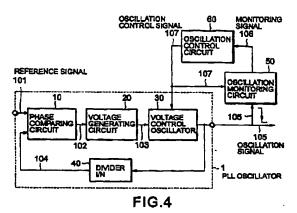
 AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU

 MC NL PT SE

 Designated Extension States:

 AL LT LV MK RO SI
- (30) Priority: 24.08.1998 JP 23783498
- (71) Applicant: NEC CORPORATION Tokyo (JP)

- (72) Inventors:
 , Araki, Yoshihiro
 Nakahara-ku, Kawasaki-shi, Kanagawa (JP)
 , Yamaguchi, Michimasa
 Nakahara-ku, Kawasaki-shi, Kanagawa (JP)
- (74) Representative: VOSSIUS & PARTNER Siebertstrasse 4 81675 München (DE)
- (54) PLL circuit having a ring oscillator and method of controlling the same
- A PLL circuit detects oscillation halt of a (57)voltage control oscillator, generates an oscillation control signal for automatically oscillating the voltage control oscillator based upon the detected signal, and automatically restores the voltage control oscillator to a normal oscillation state by the use of the generated signal. The voltage control oscillator is structured by a ring oscillator in which a plurality of differential amplifiers are connected in a ring form. A plurality of oscillation control means are arranged for the respective inputs of the differential amplifiers so as to set the ring oscillator into an oscillationable state when the voltage control oscillator halts. The oscillation control means is controlled by the oscillating control signal.



ш



EUROPEAN SEARCH REPORT

Application Number EP 99 11 6166

		ERED TO BE RELEVANT	_	
Category	Citation of document with it of relevant pass	ndication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CL7)
Y	AL) 11 October 1994	LIAMS BERTRAND J ET (1994-10-11) - column 6, line 40 *	1-10	H03L7/099
Y,D	PATENT ABSTRACTS OF vol. 1995, no. 06, 31 July 1995 (1995- & JP 07 074625 A (F 17 March 1995 (1995 * abstract *	07-31) UJITSU LTD),	1-10	
A	US 5 767 748 A (NAK 16 June 1998 (1998- * the whole documen	06-16)		
A	US 5 596 302 A (MAS AL) 21 January 1997 * the whole documen	TROCOLA ANGELO R ET (1997-01-21)		
A	US 5 796 313 A (EIT 18 August 1998 (199 * the whole documen	8-08-18)		TECHNICAL FIELDS SEARCHED (Int.Ci.7) H03L H03B
	The present search report has b	een drawn up for all claims	_	
	Place of search	Date of completion of the search		Examiner
MUNICH		4 July 2000	Kahi	n, K-D
X : parti Y : parti docu A : techi O : non-	ATEGORY OF CITED DOCUMENTS cularly relevant if combined with anoth ment of the aame category notogical background written disclosure mediate document	T : theory or principl E : earlier patent do after the filing da or D : document cited i L : document cited i	e underlying the is current, but publis te in the application or other reasons	nvention shed on, or

O FORM 1503 D3 82 (Pa

EP 0 987 822 A3 ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 99 11 6166

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-07-2000

Patent document cited in search repo		Publication date	Patent family member(s)	Publication date
US 5355097	Α	11-10-1994	NONE	
JP 07074625	Α	17-03-1995	NONE	
US 5767748	Α	16-06-1998	JP 9214299 A	15-08-199
US 5596302	Α	21-01-1997	EP 0785622 A JP 9219623 A	23-07-199 19-08-199
US 5796313	A	18-08-1998	NONE	
				,

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82